

In th Claims

Please replace the claims with the following clean version of the entire set of pending claims, in accordance with 37 C.F.R. § 1.121(c)(1)(i). Cancel all previous versions of any pending claim.

A marked up version showing amendments to any claims being changed is provided in one or more accompanying pages separate from this amendment in accordance with 37 C.F.R. § 1.121(c)(1)(ii). Any claim not accompanied by a marked up version has not been changed relative to the immediate prior version, except that marked up versions are not being supplied for any added claim or canceled claim.

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CLAIMS

Please delete claims 1-21.

Please add new claims 22-40.

PS *SUB D1*

22. (New) A semiconductor processing method comprising:
forming an antireflective material layer over a substrate;
annealing at least a portion of the antireflective material layer at a
temperature of at least 550° C;
forming a layer of photoresist over the annealed antireflective material
layer;
patterning the layer of photoresist; and
removing a portion of the antireflective material layer unmasked by the
patterned layer of photoresist.

23. (New) The method of claim 22 wherein the layer of photoresist is
formed against the antireflective material layer.

24. (New) A semiconductor processing method comprising:
forming an antireflective material layer over a substrate;
annealing the antireflective material layer at a temperature of at least 550°
C;
forming a layer of photoresist over the annealed antireflective material
layer; and
exposing portions of the layer of photoresist to radiation waves, some of
the radiation waves being attenuated by the antireflective material during the
exposing.
25. (New) The method of claim 24 wherein the attenuation comprises
absorbing radiation waves with the antireflective coating.
26. (New) The method of claim 24 wherein the layer of photoresist is
formed against the antireflective material layer.
27. (New) The method of claim 24 further comprising exposing the
antireflective material layer to a nitrogen-containing atmosphere during the
annealing.

28. (New) A semiconductor processing method comprising;
forming a solid antireflective material layer over a substrate;
altering optical properties of the antireflective material layer by annealing
the antireflective material layer at a temperature greater than or equal to about
550° C;

after altering the optical properties, forming a layer of photoresist over the
antireflective material layer; and

exposing portions of the layer of photoresist to radiation waves and
absorbing some of the radiation waves with the antireflective material.

29. (New) The method of claim 28 further comprising exposing the
antireflective material layer to an atmosphere during the altering, the atmosphere
comprising at least one of nitrogen and argon.

30. (New) The method of claim 28 wherein the optical properties which
are altered include at least one of a refractive index coefficient or an extinction
coefficient.

31. (New) The method of claim 28 further comprising:
chemical vapor depositing the antireflective material layer onto the substrate
at a temperature of from about 300° C to about 400° C; and
selectively removing either the exposed or unexposed portions of the
photoresist while leaving the other of the exposed and unexposed portions over
the substrate.

32. (New) A semiconductor device comprising:
a substrate, and
an annealed antireflective material layer over the substrate, wherein the
annealing is achieved by exposing the antireflective material layer to a
temperature of at least 550° C.

33. (New) The device of claim 32 further comprising a layer of
photoresist over the antireflective material.

34. (New) The device of claim 32 wherein the antireflective material
layer comprises a stack of layers.

35. (New) The device of claim 32 wherein the antireflective material
layer comprises a stack of layers, at least one of the stack of layers comprising
silicon dioxide.

36. (New) The device of claim 32 wherein the antireflective material layer consists of one substantially homogenous layer.

37. (New) A semiconductor device comprising:

a substrate; and

an annealed antireflective material layer over the substrate, the antireflective material layer comprising oxygen, nitrogen and silicon, and wherein the annealing is achieved by exposing the antireflective material layer to a temperature of at least 550° C.

38. (New) The device of claim 37 wherein the antireflective material layer comprises from about 5% to about 37% (by atomic concentration) oxygen, from about 10% to about 35% (by atomic concentration) nitrogen, from about 50% to about 65% (by atomic concentration) silicon, and hydrogen.

39. (New) A semiconductor device comprising:

a substrate;

an annealed antireflective material layer over the substrate, and wherein the annealing is achieved by exposing the antireflective material layer to a temperature of at least 550° C; and

at least one layer of material over the antireflective material layer, wherein the at least one layer of material is at least partially transparent to radiation utilized to pattern photoresist.

40. (New) The device of claim 39 further comprising a plurality of layers of material over the antireflective material layer, wherein all the layers of material are at least partially transparent to radiation utilized to pattern photoresist.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40.